CLAIMS:

What is claimed is:

1. A process for preparing particles of zinc sulfide-based electroluminescent phosphor having a moisture resistant coating thereon comprising the steps of:

selecting a reaction vessel having a given height and a porous disc at the bottom thereof;

charging said reaction vessel with phosphor particles and fluidizing said particles by introducing an inert gas into said vessel through said porous disc;

heating said reaction vessel to a reaction temperature;

introducing a coating precursor into said reaction vessel at a position adjacent said bottom of said vessel but above said disc;

introducing a co-reactant into said reaction vessel at a position substantially mid-way of said given height; and

maintaining said inert gas flow, said precursor flow and said co-reactant flow for a time sufficient for a reaction to occur and coat said phosphor with said moisture resistant coating.

2. The method of Claim 1 wherein said moisture resistant coating is aluminum nitride amine.

3. The method of Claim 1 wherein said coating precursor is hexakis(dimethylamido)dialuminum.

4. The method of Claim 3 wherein said co-reactant is anhydrous ammonia.

5. The method of Claim 4 wherein said reaction temperature is about 150 to 225°C.

6. An apparatus for manufacturing commercial quantities of zinc sulfide-based electroluminescent phosphor having a moisture resistant coating thereon, said apparatus comprising:

a reaction vessel having a given height and a porous disc at the bottom thereof;

a supply of phosphor particles within said vessel;

a first supply of an inert gas for fluidizing said particles, said first supply of inert gas entering said vessel through said porous disc;

a heater surrounding said reaction vessel for heating said reaction vessel to a reaction temperature;

a supply of a coating precursor;

first means for conducting said coating precursor from said supply to said reaction vessel, said first means entering said reaction vessel at said bottom of said vessel at a position above said porous disc;

a supply of a co-reactant; and

a second means for conducting said co-reactant from said supply to said reaction vessel, said second means entering said reaction vessel at a position substantially mid-way of said given height.

7. The apparatus of Claim 6 wherein said reaction vessel has a diameter of about 10 inches.

8. The apparatus of Claim 7 wherein said reaction vessel is stainless steel.